REMARKS

The rejection of claim 24 is now moot in view of Applicants' cancellation of claim 24.

Claims 23, 25-29 and 31-34 stand rejected as being anticipated by Schneider et al. Claim 23 has been canceled and therefore, the rejection of that claim is moot.

Claim 25 recites an automatic machinery fault diagnostic method and procedure for machines or one or more components thereof. The method includes using a Machinery Fault Class Library including references to specific signatures calculated from signals acquired from sensors placed at specific locations on said machine.

In rejecting this claim, the Examiner looks to the Schneider et al. reference. Applicants respectfully submit that this reference and in particular, column 25 as mentioned by the Examiner, fails to disclose a fault class library as recited in the claims. More specifically, column 25, lines 21 to 40, of Schneider discloses defining modes of complex systems by name, not to a machinery fault class library which refers to signatures calculated from signals acquired from sensors. As such, claim 25 recites a different structure in that the signatures on the library are calculated in a specific manner, i.e., from signals acquired from sensor, which is quite different that defining items by name and then ordering as disclosed in Schneider et al. Based on the foregoing, Applicants respectfully submit that the Schneider et al. references fails to disclose or suggest a library that includes references to specific signatures calculated from signals from sensors placed at specific locations on the machine. Claim 25 recites with specificity the type of references (signatures) and the manner of calculating these references (from sensors), both of which are different from that disclosed in the prior art reference.

Reconsideration and allowance of claim 25 are in order.

Claims 26-34 should be allowed as depending from what should be an allowed independent claim 25. In addition, these claims contain patentable subject matter in and of

themselves. In particular, these claims recite the manner in which machine states are determined and more specific information concerning the makeup of the fault class library.

Claims 1-11, 14-22 and 24 stand rejected as being unpatentable over Quist et al. in view of Beakley.

Applicants respectfully traverse this rejection based on the present amendments and the following comments.

The Examiner contends that the Quist et al. reference discloses the invention of claim 1 except for a total fault symptom strength value which is taught by the Beakley reference. Applicants first respectfully submit that the Beakley reference does not disclose a total fault symptom strength value as disclosed in the present invention. In support for the assertion that Beakley teaches the disclosed total fault symptom strength value, the Examiner points to column 4, lines 41-49 of Beakley for such teaching. Applicants respectfully contend that this passage of Beakley fails to disclose or even suggest a total fault symptom strength value as set forth in the present application. In particular, this passage of Beakley says nothing more than that different events can represent occurrences of different severity. Beakley is directed to a graphical user interface and consolidating /sorting system that is adapted to intrusion detection. The intrusion detection system can accept event information and analyze it to identify malicious or unauthorized use of network resources. Beakley merely states that some events are more serious than other events and therefore, different events have different levels of importance, danger and severity. The reference simply remarks that sometimes a combination of events can indicate a noteworthy condition.

This general statement in Beakley is not the same as the present invention where a single total fault symptom strength value is calculated and the trend for this total fault symptom strength value is then used to predict the progress of the fault. More specifically, there is absolutely no teaching or even suggestion that a combination of events in Beakley is representative of anything, especially the strength of a fault. At best and as stated in Beakley, the combination of a number of

different events may indicate a noteworthy condition that should be further analyzed. In sum, there is absolutely no teaching that this sum or total is representative of a strength of the fault as required by claim 1.

In order to further clarify and define the total fault symptom strength value of claim 1, Applicants have amended claim 1 to recite that for each symptom for indicating a fault, a symptom value and a symptom severity value are calculated as a function of a reduced data set calculated from measured data as a measure of the deviation of the measured data from base line values. The total fault symptom strength value is obtained or calculated from the symptom value and the symptom severity value. Applicants respectfully submit that Beakley clearly does not disclose such a calculation and more particularly, the only combination mentioned in Beakley is a combination of different events . This is different than the recited combination of a symptom value and symptom severity value which is representative of the fault strength. Beakley is silent that a combination of "events" would be representative of the strength of a fault.

Based on the above and on the fact that Applicants have further defined how the total fault symptom strength value is determined, Applicants respectfully request reconsideration and allowance of amended claim 1. In other words, Beakley fails to recite a system where a total fault symptom strength, as defined according to the present invention, is determined.

In addition, Applicants respectfully submit that the Quist reference does not disclose or suggest each of the other elements recited in claim 1. In particular, claim 1 recites that stored data is fitted to a trend line in order to predict the time when the total fault symptom strength value will exceed a predetermined value. The passage in Quist (column 23) that the Examiner refers to merely states that the it is possible to identify specific load conditions at which data can be taken to accurately diagnose the condition and anticipated future life of the machine. Applicants contend that this cited passage merely says that detected data can be used to diagnose the machine condition and from this, it is possible to determine how well the machine will hold up in the future. However, there is no mention of fitting data to a trend line and then predicting a time when the total fault symptom strength value will exceed a predetermined value. Thus, this step involves a comparison

of values of the total fault symptom strength value as fitted over a trend line and when the strength value exceeds a predetermined value (when the line exceeds a certain value). In other words, the present invention involves fitting and using a trend line to determine a time when an event will occur, specifically, when the strength value exceeds a predetermined value.

In addition and in contrast to what the Examiner contends, Applicants respectfully submit that the Quist reference also fails to disclose a total fault symptom strength value as defined by the present invention. The Examiner points to column 23, lines 21 to 35, for support; however, Applicants have reviewed this passage and are of the opinion that it does not teach a total fault symptom strength value. Instead, the passage indicated by the Examiner from column 22, line 57 to column 23, line 5 appears to suggest that all of the data is compared with statistical data corresponding to other motors of the same model, i.e., that there is no attempt to combine the data into a total fault symptom strength value as specified by the present invention. Claim 1 has been amended to more clearly set forth the manner in which the total fault symptom strength value is obtained. Based on the foregoing differences, Applicants respectfully submit that the neither of the prior art references disclose or even suggest the claimed invention and in particular, the total fault symptom strength value of the present invention.

Reconsideration and allowance of this claim are in order.

Claims 2-3 should be allowed as depending from what should be an allowed independent claim 1.

Claim 4 has been amended in a manner similar to how claim 1 has been amended and therefore, for the same reasons as to why claim 1 should be allowed, Applicants respectfully submit that independent claim 4 should be allowed.

Claims 5-10 should be allowed as depending from what should be an allowed independent claim 4, as amended.

Claim 11 has been amended in a manner similar to how claim 1 has been amended and therefore, for the same reasons as to why claim 1 should be allowed, Applicants respectfully submit that independent claim 11 should be allowed.

Claims 12-15 should be allowed as depending from what should be an allowed independent claim 11, as amended.

Claim 16 has been amended in a manner similar to how claim 1 has been amended and therefore, for the same reasons as to why claim 1 should be allowed, Applicants respectfully submit that independent claim 16 should be allowed.

Claims 17-20 should be allowed as depending from what should be an allowed independent claim 16, as amended.

Claim 21 has been amended in a manner similar to how claim 1 has been amended and therefore, for the same reasons as to why claim 1 should be allowed, Applicants respectfully submit that independent claim 21 should be allowed.

Claim 22 has been amended in a manner similar to how claim 1 has been amended and therefore, for the same reasons as to why claim 1 should be allowed, Applicants respectfully submit that independent claim 22 should be allowed.

Applicants have added new claim 41 and respectfully request consideration and allowance of this new claim.

Claim 41 should be allowed for most of the same reasons as to why claim 1 should be allowed, including but not limited to, the fact that the cited reference, and in particular, the cited passage, does not disclose the concept of calculating a total fault symptom strength value as set forth and defined by the present applicants. As discussed above in great detail with respect to claim 1, the Examiner looks to the Beakley reference for a teaching of a total fault symptom strength value; however, this reference teaches nothing more than the fact that different events can represent

occurrences of different severity. There is absolutely no teaching that the values are combined to obtain a total fault symptom strength value which indicated the strength of a fault. The Beakley reference states nothing more than the fact that sometimes a combination of events can indicate a noteworthy event. There is no indication that this combination is calculated from measured data and that it indicates the strength of a total fault. As such, there are significant differences between the two and the Beakley reference fails to contemplate the claimed aspects of the present invention.

Moreover, the single total fault symptom strength value that is calculated in accordance with claim 41 is then used to predict the progress of the fault. Once again, this aspect of the claimed invention is completely lacking in the cited reference which is completely silent as to how the combination of events is used and even the other passages in the Quist reference, merely discuss that once a diagnosis of a condition is performed, it is possible to anticipate the future life of a machine. This again is something much different than the claimed invention and in particular, the above aspect of the claimed invention where the strength value is used to predict the progress of the fault.

Based on the foregoing, Applicants respectfully request consideration and allowance of claim 41.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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